St. Bartholomew's Hospital Journal.

VOL. V.—NO. 6.] MARCH, 1898. [PRICE SIXPENCE.

NOTICE.

All Communications, Articles, Letters, Notices, or Books for review should be forwarded, accompanied by the name of the sender, to the Editor, ST. BARTHOLOMEW'S HOSPITAL JOURNAL, *St. Bartholomew's Hospital, Smithfield, E.C.,* BEFORE THE 1ST OF EVERY MONTH.

The Annual Subscription to the Journal is 5s., including postage. Subscriptions should be sent to the MANAGER, W. E. SARGANT, M.R.C.S., *at the Hospital.*

All communications, financial or otherwise, relative to Advertisements ONLY, should be addressed to J. H. BOOTY, *Advertising Agent, 29, Wood Lane, Uxbridge Road, W.*

A Cover for binding (black cloth boards with lettering and King Henry VIII Gateway in gilt) can be obtained (price 1s. post free) from MESSRS. ADLARD AND SON, *Bartholomew Close.* MESSRS. ADLARD *have arranged to do the binding, with cut and sprinkled edges, at a cost of 1s. 6d., or carriage paid 2s. 3d.—cover included.*

St. Bartholomew's Hospital Journal,

MARCH 14th, 1898.

"Æquam memento rebus in arduis
Servare mentem."—*Horace,* Book ii, Ode iii.

WE have to announce with regret that Sir Thomas Smith has resigned his position as Senior Surgeon to the Hospital. This is, of course, not unexpected; the recent changes in the Orthopædic Department and elsewhere have been but shadows of an event which was known to be inevitable. Nevertheless all Bart.'s men will keenly regret the departure of one from our midst who has been closely associated with the Hospital for nearly half a century, during which time he has not only added conspicuously to its renown, but has endeared himself to everyone. It would be indeed hard to say whether Sir Thomas Smith is most admired by Bart.'s men in his professional or his personal capacity; nor is it necessary to decide. It is part of that conservatism with which Bart.'s is always credited that we have, in Lowell's phrase, learnt "of old friends to be most miserly." And though we recognise the advisability of the superannuation rule, nay, its actual necessity, this does not lessen our sorrow at the loss of so tried and trusted a friend. Still it is gratifying to remember that Sir Thomas Smith does not leave us from failing health; his force is not abated, and our loss will be the gain of others. Freed from the exacting duties of the Hospital, he will be more at liberty to devote his time to private practice.

It was in October, 1850, that Mr. Smith (as he then was) began his student career at our Hospital. The minute books of the Abernethian Society still record his admission to the ranks of its members, and his subsequent election as President in 1857. After qualifying he was elected a Demonstrator in the "Rooms," and a little later Demonstrator of Operative Surgery. He became a Fellow of the Royal College of Surgeons in 1858, and published his textbook of operative surgery in the following year. When Senior Demonstrator of Anatomy his colleague was Mr. Morrant Baker, and the Assistant Demonstrators were Mr. Vernon and Mr. Langton. In 1864 he was elected Assistant Surgeon to the Hospital, and soon after took charge of the Special Department for Diseases of the Ear. At the time of his election to the Staff the Surgeons were Mr. Skey, Mr. Wormald, Mr. (now Sir James) Paget, and Mr. Coote, and the other Assistant Surgeons Mr. Holden, Mr. (afterwards Sir William) Savory, and Mr. Callendar. In 1873 he became full surgeon, a post he has held for just a quarter of a century. On the death of Sir William Savory he was appointed Surgeon Extraordinary to the Queen.

Of the numerous other positions he has held we need only mention the Vice-Presidency of the College of Surgeons, the Honorary Secretaryship of the Royal Medical and Chirurgical Society; he is still Consulting Surgeon to the Hospital for Sick Children, Great Ormond Street. By his kindly consideration for all with whom he has had to deal in these various positions, he has won the affectionate esteem of his colleagues, the students, and the patients alike.

We have not spoken of his contributions to surgical literature, though these are by no means inconsiderable.

His work on cleft palate is known to all, and the value of our Hospital Reports has been repeatedly enhanced by papers from his pen, rich in clinical experience.

Great was the delight of all Bart.'s men, past and present, when on the occasion of the Diamond Jubilee the Queen conferred a Baronetcy on our Senior Surgeon and her Surgeon Extraordinary. It is no secret that Sir Thomas Smith was less anxious for the honour than Bart.'s was to see that honour so worthily bestowed. The spontaneous nature of the reception accorded him at the Hospital on the day following this announcement was in itself a testimony to his unbounded popularity. The repetition of this reception next day at consultations will be long remembered by those present for the graceful speech with which Sir Thomas Smith made his acknowledgments.

We had hoped that in this number Sir Thomas might have been able to give some reminiscences of his long connection with the Hospital. These fifty years have seen great changes, and we should have been glad to have the opportunity of viewing them as they appeared to him. But stress of engagements forbade, or rather, shall we say, deferred the accomplishment of this. For Sir Thomas Smith has promised to think over it in a few months' time, and see if he can provide us with an article on the subject; and such a contribution we are sure will be eagerly anticipated. Meanwhile we are glad to have the opportunity of presenting our readers with an admirable likeness of one who will always be affectionately remembered, as he himself requested, by the familiar name of Tom Smith.

Pathological Jottings.

By A. A. KANTHACK, M.D., F.R.C.P., Professor of Pathology in the University of Cambridge.

VII. THE PROCESS OF ACUTE INFLAMMATION (*continued*).

A FEW words must now be said regarding the action of the pyogenic micro-organisms. It is erroneous to imagine that these microbes are truly *specific* in their action, and thus capable of producing suppuration only. Suppuration is only the outward expression of certain inflammatory processes, and it is not even the most serious phase or variety of inflammation, and therefore, *a priori*, we should expect that the so-called pyogenic organisms can bring about various forms of inflammation according to the prevailing conditions. As a matter of fact we find that the same species of organisms may produce a slight local inflammation or an extensive spreading inflammation, a small local suppuration or a large acute abscess, an erysipelas or a cellulitis, a pneumonia, a septicæmia, an infective endocarditis, or a pyæmia. Thus a small acne pustule may contain one or more varieties of pyococci, it may grow into a boil, the latter into a carbuncle, which again may be followed by septicæmia or pyæmia. The pneumococcus may be found in pneumonia, in suppurative otitis media, in angina Ludovici, in infective endocarditis, peritonitis, and pleurisy. Almost all vegetable micro-organisms possess the faculty of producing an inflammation, and those which are most frequently found in primary inflammatory processes are called pyogenic; but whether they produce a benign form of inflammation or a suppuration, an œdematous or necrotic inflammatory lesion, will depend chiefly on the virulence of the bacteria, the local conditions, the local or general resistance, on the quantity of bacteria introduced, and on the supply of micro-organisms, *i. e.* whether we have a single or a continued invasion of micro-organisms. Under favourable conditions, *i. e.* if the virulence of the bacteria is reduced or the resistance of the tissues exalted, we have an innocent local inflammation; as the virulence increases, or as the resistance decreases, suppuration makes its appearance, and if the virulence is excessive and the resistance slight, we have an œdematous, necrotic, or gangrenous inflammation. Septicæmia appears when the organisms enter the circulation and multiply in the blood. It is of the utmost importance to realise that suppuration is not a specific process, it is a clinical term for changes which can be recognised by the unaided eye.

The character of pus varies considerably. (1) Thus it may be thick creamy, light yellowish or greenish in colour, possessing a characteristic faint odour (laudable pus), which is oftenest associated with staphylococci. (2) It may be serous and thin, when the streptococcus is not uncommon. (3) Its colour may be blue or green, which is due to the presence in pus of the *B. pyocyaneus*. (4) In suppuration, occurring during the course or as the result of enteric fever, we frequently find thick reddish pus, when the lesion is due to an infection with the *B. typhosus;* (5) while gangrenous pus is generally associated with a mixture of organisms (mixed infection). It must not be imagined, however, that we are in a position to recognise the nature of the bacterial infection from the appearance or character of the pus. In so-called laudable pus streptococci may be found alone or together with staphylococci, and again in serous pus staphylococci may occur, and the pus in typhoidal suppuration may differ in no way from ordinary pus. At the present time the bacterial character of pus can be only gauged by means of the platinum needle and a test-tube, all the more since usually two or more species of pyogenic organisms occur together. Whatever we may be able to do in the future, at present we cannot distinguish with anything like certainty different specific forms of pus; all we can say is that in serous pus streptococci are likely to occur, and in ordinary laudable pus staphylococci, but we must not go further.

In the study of pyogenic lesions it is important to remember that a *suppurative process may be primary or secondary, i. e.* it may be the only lesion present or it

may appear in the course of or after the defervescence of an infective fever. Thus a patient may present himself with an abscess due to some injury associated with or followed by infection (primary suppuration), and another patient may develop an abscess during or after an attack of enteric fever (secondary suppuration). In the latter case the suppuration may be due to the same organism which caused the fever—in our example the *B. typhosus* (*homologous infection*), or it may be due to an altogether different organism, such as a streptococcus or a staphylococcus (*heterologous infection*).

Suppurative processes
- Primary
- Secondary (or intercurrent)
  - Homologous infection.
  - Heterologous infection.

Anatomically suppuration may be (1) *superficial* or (2) *interstitial*; that is, pus may be either discharged from a free surface or it may collect in the depth. When the process is superficial it may appear (*a*) as a result of inflammation of a mucous or (*b*) serous membrane. In the former case we speak of *pyorrhœa*, and this may or may not be accompanied by superficial ulceration. In the other case we are dealing with an *empyema*, although this term is now generally applied to suppuration of the pleura. When the suppuration is interstitial the pus may remain (*a*) localised, forming an *abscess*, which may or may not be surrounded by a capsule; or (*b*) it may infiltrate the connective tissue. The *purulent infiltration*, by destroying the tissues bathed by the pus, may become converted into an abscess. If the pus infiltrates the epidermis the result is a *pustule*, which in reality is an epidermal abscess.

Suppuration.
- (1) Superficial:
  - (*a*) Mucous membrane = pyorrhœa ± ulceration
  - (*b*) Serous membrane = empyema
- (2) Interstitial:
  - (*a*) Localised
    - connective tissue = abscess ± capsule
    - epidermis = pustule
  - (*b*) Infiltrating: may become an abscess

The pus which has been formed may be re-absorbed on cessation of the irritation or inflammation. This, however, can only take place when the collection of pus is but slight. This re-absorption is effected in part by phagocytosis, in part by the proliferation of the endothelial and connective-tissue cells. Proliferative changes there must be, because during suppuration there is histolysis, and the destroyed tissue must be replaced by fibrous tissue (*indirect repair*). If the pus does not disappear in this manner it remains behind as pus, and the result is generally a chronic abscess. The latter may have a distinct fibrous capsule, and if the inflammation abates or ceases the capsule becomes smooth, and forms the so-called *pyogenic membrane* of older writers. In most chronic abscesses inflammation and suppuration continue, micro-organisms flourish in the pus, and they with their poisons act as irritants. In some, however, all inflammation ceases, the micro-organisms perish, and the symptoms due to pent-up pus may be entirely absent (*cold abscess*). On the other hand, the unabsorbed pus may become *curdy and inspissated*, or *caseous*, and even calcareous or cretaceous on account of a deposition of calcium salts; calcification is always preceded by inspissation or caseation.

Pus
- Re-absorption
- Retention
  - Liquid:
    - (*a*) Chronic abscess
    - (*b*) Cold abscess
  - Inspissated:
    - (*a*) Curdy
    - (*b*) Caseous
    - (*c*) Calcareous

Hæmorrhagic exudation.—It has already been stated that, along with the leucocytes and fluid exudation, red blood-corpuscles pass out of the vessels. Under certain conditions this passive diapedesis of the red corpuscles may be excessive, so that the exudation becomes hæmorrhagic. In such cases leucocytes are generally scarce, so that we obtain a *blood-stained serous exudation;* but occasionally the red corpuscles are mixed with the leucocytes and round cells which have been collected in large numbers at the inflammatory centre, so that we obtain a *blood-stained purulent exudation.*

The excessive diapedesis of the red corpuscle is due mainly to the severity of the irritant, or to lowering of the resisting powers of the tissues. Thus we find that virulent infections, such as smallpox, malignant pustules, and acute necrosis, are frequently accompanied by hæmorrhagic exudation; or that in a debilitated subject, such as one suffering from renal disease, inflammations readily become hæmorrhagic. In gangrene also, where the toxins are powerful, and are absorbed in large quantities, the vessels are injured, and hæmorrhages due to direct rupture or due indirectly to diapedesis are common. Again, in the early stages of acute inflammation hæmorrhagic exudations are not unusual; thus in acute nephritis, to begin with, the urine is often red from admixture of blood (nephritis hæmorrhagica). A mechanical injury may cause vascular lesions, gross or minute, by which the blood finds an outlet and mixes with the inflammatory exudation; this, however, is a true hæmorrhage, and very different from the hæmorrhagic inflammation where

Hæmorrhagic inflammation
- (1) Direct hæmorrhage (*per rhexin*) = lesion of vessel wall, gross or minute
- (2) Indirect hæmorrhage (*per diapedesin*)
  - (*a*) Intense irritation
  - (*b*) Early stages of acute inflammation
  - (*c*) Venous engorgement
  - (*d*) Loss of local or general tissue resistance

the blood transudes by a process of passive diapedesis: the former is a hæmorrhage *per rhexin*, the latter a hæmorrhage *per diapedesin*. Again, inflammation may occur in a part the venous circulation of which is laboured and obstructed,

i. e. in an engorged area. Here there is considerable slowing of the blood stream, marked fulness of the venous channels, and grave disturbance of nutrition. Inflammation under such conditions readily causes a transudation of blood, a hæmorrhage *per diapedesin.*

Proliferative changes.—We must now consider the proliferative changes of acute inflammation. These are best seen when the exudative changes are clearing away, but it is erroneous to imagine that in point of time they follow the exudative phenomena. They begin while those latter are progressing,—in fact, they may be observed at the margins of the affected area often at the earliest stage of inflammation, but they become more evident when with the disappearance of the leucocytes the veil is lifted and a clear view is obtained, and they persist, passing imperceptibly into the stages of repair. Repair is a termination of inflammation, but not even a necessary one, for it may often be absent. Proliferative changes are always present; at times, however, they are but slight in degree, at others extremely well marked. An injured tissue, which has any life left in it, is always ready to react by repair; if there is loss of substance the living cells will multiply and proliferate, but if there is no loss of substance, no necrosis, but merely damage to the cells, it may simply recover. We have, therefore, two processes by which an injury is made good; (*a*) repair by recovery, (*b*) repair by proliferation. The latter may or may not be accompanied by or preceded by inflammation. Thus an injury to a tissue may not be sufficient to rouse the connective tissue, and then *repair is direct*, the cells proliferating and producing homologous tissue, but if it be sufficient to rouse the connective tissue into an inflammatory reaction, repair is indirect; matter has to be cleared away, a gap has to be filled up, and this can only be done by fibrous tissue, *i. e.* by heterologous tissue. It is in the nature of things that reparative changes should appear in inflammation; the living tissue tends to repair an injury, that is a postulate of pathology; and we find that while the least injured cells recover, the more injured ones die, and their places are supplied by a new progeny. Now, since in inflammation there is always some necrosis, there must be proliferation, and therefore proliferative changes are a *sine quâ non* in inflammation. These changes are observed (1) in the connective-tissue cells, (2) the endothelial cells of the lymph spaces and capillaries. The connective-tissue cells enlarge, their nuclei become swollen, round or oval, and karyokinesis (mitosis) is active, which is certain evidence of proliferation. These changes occur while the leucocytes are still present, and the leucocytic infiltration may be so considerable as to hide the proliferative phenomena altogether from view. When, however, the leucocytic infiltration clears up, which it always does as the inflammation subsides, then we see clearly what has taken place. There are many large protoplasmic cells, rich in cell substance, with nuclei which stain but faintly, or are rich in chromatin, and resemble epithelial cells, and are therefore often called epithelioid cells. Others are more fusiform in shape, with long darkly staining nuclei; these gradually become spindle-shaped. It is generally believed that the spindle-cells are merely a later stage of the epithelioid cells, *i. e.* that both are derived from the connective-tissue cells, although some observers believe that the spindle-cells are derived from the fixed connective-tissue cells, and the epithelioid cells from the endothelium. At this period, when the leucocytic infiltration has disappeared and the cells begin to proliferate, numbers of small uninuclear round cells appear, which possess a large round nucleus, and resemble lymph corpuscles (lymphocytes). These small cells are collected in irregular groups, or in distinct masses which may be compared to adenoid or lymphoid collections, and they constitute the *small round-cell infiltration* (lymphocytic infiltration). These small cells appear to be derived from rapidly proliferating connective-tissue cells, from the endothelium of the lymphatic spaces, and from the lymphocytes which are always present in the connective tissue, but many of these small wandering cells may have been attracted by so-called "chemiotactic" influences. The free connective-tissue cells, the lymphocytes, and the endothelium of the lymph spaces are all migrating, and may therefore be attracted to the seat of irritation.

The normal connective tissue possesses (*a*) fixed cells and (*b*) wandering cells, but normally while only the latter are free and under the spell of chemiotaxis, we find during inflammation that the fixed cells divide and proliferate, and then become free and migrating. They wander to the seat of inflammation, being at first mixed up with the emigrated leucocytes in the exudation, and they assist the latter in clearing away the irritant, foreign and dead matter, hæmorrhages and fibrin, and when the leucocytes have performed their share they take up their dead remains and complete the cleansing process. When everything is cleared away they either fall into their proper places, or they undergo further changes and form vascular cicatricial tissue. A croupous pneumonia, for instance, may clear up, the leucocytes disappearing, being in part discharged with the expectoration, in part taken up by the connective-tissue cells and the endothelium; these cells may then simply resume the places they ought to occupy, so that the result is a complete resolution without secondary thickening, or they may form vascular connective tissue which gradually becomes fibrous and leads to a chronic induration of the lung. In resolution, therefore, we have homologous repair, in induration heterologous repair (*cicatrisation*). When cicatrisation occurs the proliferated cells become spindle-shaped, arrange themselves in strands along the vessels, more and more interstitial substance appears between the cells, which have become still more fusiform and are now called fibroblasts. The latter become gradually less protoplasmic, while the interstitial substance increases, and gradually typical fibrous

tissue is formed, which in time becomes harder and less vascular.

It is during the stages of repair, especially during the earlier stages, that phagocytosis is well seen. The connective-tissue cells take up the dead tissues, the leucocytes, foreign bodies, &c., following the example set them by the leucocytes. If the material to be removed is copious or firm, giant-cells will appear, *i. e.* multinucleated cells with numerous nuclei, and often provided with branched processes. They are both phagocytic and histolytic, dissolving the substances with which they come in contact. It is a debated point whether the giant-cells are of endothelial or connective-tissue origin, whether they are plasmodial or formed by continued cell division. This matter will be discussed in a subsequent article.

During the process of heterologous repair new vessels appear. These are formed by the original capillaries which throw out endothelial buds into the inflammatory area occupied by the proliferated cells and by the small round cells forming the lymphocytic infiltration. At a given point the endothelial cells of the capillary divide and multiply, until we have a solid endothelial protrusion or offshoot. This becomes hollowed out by the blood forced into the bud from the old vessel, and in this manner the vessels are prolonged into the proliferating tissue. Examining these newly formed vessels more closely we find that they are surrounded by numerous small round cells, amongst which we find spindle-cells, epithelioid cells, and large protoplasmic cells, and if the suitable conditions exist, *i. e.* copious or firm foreign matter, also giant-cells. Such vascularised proliferating cellular tissue constitutes the so-called granulation tissue of the surgeon, which gradually becomes converted into cicatricial tissue, and as the cicatricial tissue becomes more fibrous the vessels gradually disappear, so that eventually we obtain a hard, dense, white or glistening fibrous tissue.

We may here take leave from acute inflammation, having traced its main features and followed it into resolution (homologous repair) and cicatrisation (heterologous repair). Other points might have been mentioned, such as the part played by the nervous system, and some matters might have been discussed more fully. Exigencies of space, however, a due regard for a sense of proportion, and the fear of being voted tiresome, compel me to leave this entrancing subject, the proverbial battle-ground of pathologists. For fuller information larger works on pathology must be consulted. The reader, however, should remember that as soon as resolution and repair set in inflammation is at an end, and further that cicatrisation may take place without preceding inflammation, as we have already seen while discussing Chronic Inflammation.*

* "Pathological Jottings," No. II, November, 1896.

Perforating Gastric Ulcer.

A Paper read before the Abernethian Society on November 11th, 1897,

By R. DE S. STAWELL, B.A., M.B., B.C.

DURING the last few years the subject of gastric and duodenal ulcers has been invested with new interest by the successful application of operative measures in the treatment of the deadly perforations, which they not infrequently cause; and it is this question which I here propose to consider. That we should now be able to meet this terrible lesion with a fair prospect of success, and rescue from practically certain death patients, often young and, except for this localised spot of ulceration, probably perfectly sound, is an achievement which every one, I think, will admit marks a distinct advance in the range of practical surgery. Some years ago Senn predicted the extension of operative interference in this direction, but the credit of having first definitely suggested laparotomy and suture, or other suitable measures, in cases of gastric perforation, appears to be due to Dobson of Bristol, who in 1883 called atention to the subject in a paper published in the *Bristol Medical and Chirurgical Journal* for that year. Though Kriege in 1892 was able to report the first successful case, British surgeons appear to have played the principal part in the elaboration of the operation; and now each year brings an increasing number of successful cases, many which in former times might have been overlooked being treated with brilliant results. There still, however, appears to be in a certain proportion great difficulty of diagnosis, and the details of treatment are not yet fully agreed upon. This being so I thought it might not be unprofitable to study the cases which have been treated in this hospital, and I have examined our records for the past twenty-eight years with results which, I hope, may prove of some interest for discussion. Simple perforating ulcers of the duodenum appear to be so closely correlated to those which occur in the stomach that they may fitly be considered at the same time.

I wish first to touch on some general facts concerning gastric ulcer which, I think, are interesting, before paying special attention to perforations.

First as regards *frequency*. Most authorities place this at between 4 and 5 per cent. of all diseases, deducing the proportion from post-mortem statistics. From clinical observation, however, as Osler remarks, one would not suppose the affection to be of such common occurrence. In our records, out of 7700 post-mortems I found the presence of gastric ulcer noted in rather more than 1 per cent., while in 62,600 in-patients during the corresponding period it was diagnosed in only ·7 per cent.; and in the last twelve years, while only thirty deaths from this cause appear in the statistical tables, which are compiled chiefly from the ward books, yet post mortem the fatal issue could be traced in thirty-seven, either directly or indirectly, to gastric ulcer.

Thus it would appear that a certain number of ulcers are not recognised during life, and to this class belong many of those which perforate. Giving rise to few and apparently trivial symptoms, they eat their way through the layers of the stomach wall undiagnosed, and sometimes even unsuspected, until perhaps, as actually occurred in one case, a merry laugh suddenly ruptures the thin film of peritoneum remaining between the patient and death.

Sex prevalence.—With regard to the relative prevalence in the sexes, the proportion from post-mortem statistics appears to be about three females to two males, but there is considerable discordance between the estimates of different observers. Lebert found fifty-seven cases in males to forty-one in females, and in those which Fagge quotes from the Guy's Hospital records fifty-nine were in men and forty-two in women. But in neither of these observations is it mentioned whether an equal number of bodies were examined of each sex, and this would be the only condition under which the relative sex frequency could thus be compared. At Bart.'s I find that though the total number of male and female patients admitted in each year was approximately the same, the number of males who died exceeded the females in the proportion of ten to seven. In addition to this, while autopsies were conducted on 71 per cent. of the males who died, only 62 per cent. of the females were seen on the post-mortem table. It is not unreasonable to expect that this may hold good for other large hospitals. Thus, though in ninety-six cases I was able to collect from the St. Bart.'s

post-mortem records there occurred fifty-five males to forty-one females, figures strikingly similar to those mentioned above, and appearing at first sight to indicate a preponderance of males, yet on comparing the numbers of necropsies of each sex in which these ulcers were observed, I found the true ratio to be six females to five males. This involved going over separately the notes of nearly 8000 post-mortems; and, with all deference to the registrars, I would suggest that the value of our records might be enhanced if the numbers of male and female autopsies respectively were stated in the index to each volume.

During life, however, the females appear greatly to preponderate, the ratio from our records being four to one, this corresponding with the observations of Sidney Martin and others. One is therefore not surprised to find that the mortality is stated to be much higher in men than in women, and our records give 25 per cent. as compared with 6 per cent. But I have been unable to find evidence of past or present ulceration noted in a greater number of females dying from other causes than of males, nor have I seen it stated that such an observation has been made; so that one is tempted to explain the discrepancy by supposing that a greater number of ulcers are overlooked in men during life. We shall presently see that the usual position of this lesion differs in the two sexes, and I thought that perhaps, therefore, some sign or symptom considered characteristic might often be absent in male patients; but it is a point difficult to investigate, and I have been unable to substantiate this hypothesis.

Site.—A somewhat striking contrast between the sexes was observed on classifying the ulcers described in our post-mortem books, according to their occurrence in the duodenum and pyloric, middle, or cardiac third of the stomach respectively. In men the ulcers favour the duodenal end, while in women a reverse tendency is manifested. Thus in the former the *pyloric third* was much the most common site, the duodenum coming next, and the numbers rapidly diminished as the cardia was approached; but in women the *middle third* was the seat of election, the cardiac third being second, while very few were found near the pylorus or in the duodenum (see Table I).

This point seems of interest, and I am not aware that attention has been drawn to it before.

Morbid anatomy.—Every one is familiar with the text-book descriptions of the so-called "acute perforating" variety, a single small, circular "punched-out" ulcer, with congested edges; and the "chronic" form, more extensive, with thickened border and crateriform centre, forming a funnel which is often inclined obliquely to the coats of the stomach, or having a sloping or terraced margin, aptly compared by Sidney Martin to an oyster-shell.

From a study of the position of these ulcers one is inclined to believe that their ultimate result, *i. e.* whether they cause death by perforation, hæmorrhage, or protracted vomiting and exhaustion, may depend not so much upon the special form of ulcerative process as on their situation. Thus on the anterior surface of the stomach, owing to the mobility of that region, adhesions do not form, and perforation into the peritoneal cavity is the common result. I have met with no case of fatal hæmatemesis from an ulcer in this situation. On the more fixed posterior wall adhesions to the neighbouring viscera are quickly contracted round the base of the ulcer, and when the stomach wall is pierced extravasation of gastric contents is thus prevented; but ulceration continuing, the adherent viscus is attacked, and fatal hæmorrhage may ensue from the eroded pancreatic or splenic arteries. In the same way ulcers on the greater or lesser curvature, being near the coronary arteries, more readily cause profuse hæmatemesis than those placed where the arterioles are quickly sealed.

It would appear that all simple ulcers of the stomach tend to perforate its wall, either quickly or slowly, according as they are acute or chronic, and hence I think the name "*acute perforating ulcer*" may be misleading, for it might be taken to indicate that the danger of perforation was limited to cases of acute ulcer.

That chronic ulcers may cause sudden fatal perforation is well demonstrated by three cases, amongst others, which occurred in this hospital, in women aged forty-two, fifty-one, and fifty-eight years respectively. In all of them the ulceration was evidently of old standing, and partial cicatrisation had led to hour-glass deformity of the stomach. They each had marked symptoms of perforation, and died in seven, eight, and twenty-four hours respectively from the onset. Post mortem the fatal apertures were found on the anterior wall, one the size of a pea, the other two measuring half an inch across.

Another case occurred this year in a man aged sixty-three, in whom the presence of a gastric ulcer was not suspected.

To come now to *perforation*, this is the most common cause of death, occurring in about 6 to 7 per cent. of all cases of gastric ulcer, according to Welch; and this closely corresponds to the proportion obtained from our statistics.

Sex.—Comparing the *sexes*, from the post-mortem records it appears that it was the cause of death in 50 per cent. of the male fatalities due to gastric ulcer, and 45·5 per cent. of the female; the proportion of deaths from gastric perforation was eight males to nine females. If we include perforation of the duodenum, we find that the *men predominate* in the proportion of seven to six. I wish to lay stress on this point, and shall refer to it again when discussing the diagnosis.

Age.—In *women* perforation is most commonly met with between the ages of fifteen and thirty-five, the majority of cases occurring between eighteen and twenty-five. In *men* it is rare to find a simple perforation of the *stomach* under thirty-five, while it may occur at any time after that age up till about sixty-five. But in *duodenal* ulcers perforation takes place earlier, the average age of twelve male cases in our records being thirty-three, seven being under thirty-five years. In women, on the other hand, in which the affection is uncommon, the age would appear to be greater.

The most striking feature in the table (Table 2) is the great liability to perforation which seems to exist in young females who are the subjects of gastric ulcers. There is no need to lay stress on this point; so far as I can judge, it has already been too much impressed upon our minds, to the exclusion of the important fact that perforation is also of frequent occurrence in men, especially during and after the middle period of life, when it is the stomach itself which is affected; in earlier years the duodenum is more likely to be the seat of the lesion. I should, perhaps, mention that in these investigations it has been my endeavour to exclude all cases of malignant ulceration, and those doubtful lesions in which no microscopic examination was carried out have been omitted.

The *site of perforation* is naturally, from an operative point of view, of great importance. We shall see that in this, as in other details, a difference is observed in the two sexes. From our records it appears that in males the area where perforations are most commonly found is the pyloric end of the anterior surface and lesser curvature, while in women the middle and cardiac thirds of the anterior wall represent the dangerous region.

In fifty Bart.'s and fifty published cases the proportion of perforations on the anterior surface to those on the posterior wall was, in men, eight to one; in females about three to one.

The site of *duodenal* perforations appears to be very constant, being in all the St. Bart.'s cases within one inch of the pylorus, a single exception being two inches distant, and usually on the upper and anterior aspect, thus well placed for operative treatment.

Number of perforations.—In the great majority of instances there is a single aperture, but a few cases have been recorded in which perforations were sutured on the anterior wall to no purpose, for in a few days fatal rupture occurred on the posterior wall.

Perforation as a rule takes place into the general peritoneal cavity, and seems almost invariably to lead to death, generally in less than forty-eight hours. Cases have been recorded in which the shock of perforation was sufficient to cause immediate dissolution, while in others a circumscribed abscess has been formed, and the patient, after lingering for several months, has succumbed to subphrenic abscess or other septic complications.

There appear, however, to be a few undoubted cases of recovery after perforation without operation. In the majority of these cases either some inflammatory process has glued the stomach to the abdominal wall, diaphragm, or colon, and perforation has taken place through the adhesions; or a localised abscess formed by the extravasated gastric contents has burst externally or into some hollow viscus. Thus Murchison described a case of gastro-cutaneous fistula formed in this manner, and Habershon and others have reported cases where a communication has been formed with the colon or small intestine. Perforation has taken place several times into the gall-bladder, liver, spleen, pericardium, and in two cases reported by Finny* into the left ventricle. In these instances, however, the patient did not recover. Maclaren† reports a case in which, after symptoms of perforation occurring in the morning before food had been taken, and all feeding by mouth being stopped, the patient developed signs of mischief at the base of the left lung, and after an illness lasting more than four months, coughed up a considerable amount of fœtid pus, eventually recovering. This is probably a genuine case; but a number of instances are published in which perforation is supposed to have taken place, and, no operation being undertaken, the patient

* *Brit. Med. Journ.*, 1886, vol. i, p. 1102.
† *Ibid.*, 1894, vol. ii, p. 863.

has recovered. I am unable to ascertain that in any of these cases the diagnosis was subsequently verified, but I do know that there are several instances in which perforation has been diagnosed by able and experienced men, and nothing found at the operation, the patients making a good recovery. Jowers, who has reported several successful cases, was actually induced in one to reopen the abdomen a few days after the operation, the symptoms leading him to think that a second perforation had occurred.* Such instances, as Dr. Alexis Thomson points out, justify us in taking a somewhat sceptical view of many of the so-called cases of spontaneous recovery after perforation.

The *size* of the aperture, the character of its edges, the presence or absence of surrounding thickening, and the question of the formation of protective adhesions, are all important points as regards operative procedure. In thirty-four St. Bart.'s cases the aperture varied from a pin's point to the size of a shilling, being most commonly not much larger than a threepenny piece. This appears to be a usual size.

In nearly all cases the *edges* were clean, having a punched-out appearance; and in only six was any surrounding thickening noted, which in no case appeared extensive. It was especially mentioned as not present in seven. As regards *adhesions*, in nine it was definitely stated there were none; in seven no mention was made of their presence; in seven there were adhesions to the liver, in five to the pancreas; and in three the intestines were generally matted together. *In no instance* did extravasation appear to have thus been limited. In only three cases was there any limited peritonitis or localised abscess formation, *all of which had died*, one within a week of the attack, another under two weeks; while in the third, where a kind of sinus was found amidst adhesions, no definite history could be obtained. Two subphrenic abscesses should perhaps be included, as in them there was a history suggestive of perforation, though post mortem no patent aperture was visible.

General symptoms.—I can add nothing to the general descriptions of the signs and symptoms of gastric ulcer which are to be found in the standard text-books. It appears impossible to diagnose the position of the lesion, though many points have been thought to indicate it, such as the site of the pain, the time after food at which it comes on, the posture in which the patient finds most relief, and others, all of which have been proved unreliable.

Hyperacidity of the gastric juice, due to excess of hydrochloric acid, has unfortunately now been found to be frequently absent in cases associated with dilatation of the stomach.

HISTORY.—*Hæmatemesis.*—One important point in the symptomatology of those ulcers which are likely to perforate is the rarity with which any history of hæmatemesis or melæna can be obtained. This, I think, is not difficult to understand on the supposition that the position of the ulcer is the important factor in determining perforation or hæmorrhage, a point which I have already endeavoured to demonstrate. Of thirty-two cases in which a history appeared in the notes, in twelve it was stated that there had been no hæmatemesis or melæna in sixteen; it was not mentioned; while in but four did any hæmorrhage appear to have taken place: in one instance "slight," in another once or twice in seven years, and in the other two on one occasion only, four months and three years ago respectively. This does not appear to have been recognised until quite lately, for in the *Clinical Journal* last year a man of such experience as Mr. Barker, of University College Hospital, remarks the absence of any history of hæmatemesis, in four cases upon which he operated, as an unusual fact. It is now, however, more generally accepted, I think, and not without reason, as the records of operation cases will show.

Gastric trouble.—In *most* cases of perforation some history of preceding gastric trouble is forthcoming, though it may be but slight. The usual and most important symptom seems to be pain coming on soon after the ingestion of food, generally localised, and felt either in the epigastrium or in the back, between the tenth dorsal and first lumbar vertebræ on the left side (Sidney Martin). It is relieved by vomiting, which generally occurs within one to two hours after the meal. Violent pains may come on, and during the paroxysm pressure is sometimes grateful, though in the intervals epigastric tenderness, and perhaps hyperæsthesia, is observed. These pains may be caused by excessive or irregular movements of the stomach due to its irritable condition. Pressure might control the movements and thus give relief. Nothing, as a rule, is to be felt in the clinical variety I am now considering, but I might mention here that in elderly people the presence of thickening in the pyloric region, together with evidences of a dilated stomach and emaciation, has led to an erroneous diagnosis of carcinoma.

* *Lancet*, 1894, vol. i, p. 544.

Pain after food.—In thirty-one Bart.'s cases in which the history was given, pain after food was noted in twenty-four, during from three weeks to ten years before perforation; it was associated with vomiting in eighteen, but in only two is the absence of this sign recorded. Vomiting alone after food occurred in two cases, and "dyspepsia" was the sole symptom in another. In one case no history of any gastric trouble at all could be obtained. Of the rest, one man had experienced an attack of severe epigastric pain one year previously, and suffered from constipation, but in the others no definite history pointing to gastric disorder was mentioned, though two were anæmic and constipated.

Weir and Foote,* in an exhaustive analysis of seventy-eight operation cases collected from the literature, found that though in only 37 per cent. of the patients was gastric ulcer suspected, 55 per cent. complained of symptoms described as "indigestion" or "gastritis." In only 8 per cent. was no previous indication obtained.

Constipation is very common; it was recorded in 57 per cent. of the St. Bart.'s cases, and regularity of the bowels noted only in twelve per cent.

Anæmia.—Eleven cases out of the thirty were anæmic; many of the others looked sallow, and only two were stated to have a healthy appearance. It must be remembered, however, that the description was written, in the majority of the cases, after the onset of the severe symptoms, so that these figures, I am afraid, cannot be depended upon.

Symptoms of duodenal ulcer.—These are often not to be distinguished from those of gastric ulcer, and frequently they do not appear to give rise to any. Of seventeen fatal cases in which the *history* was found in the notes, in three nothing in any way suggestive of trouble in the alimentary tract could be obtained; four complained only of pain after food during the previous few days or weeks; one suffered from obstinate constipation. The other seven gave a fairly definite history of pain after food, and vomiting, by which in one or two cases it is stated the discomfort was relieved.

SIGNS AND SYMPTOMS OF PERFORATION.—The historical case of Henrietta, Duchess of Orleans, as related by Dr. Gee in the *Bradshaw Lecture* for 1892, forms such an excellent clinical picture of gastric perforation that I will give it in his words. "She had ailed for some time from pain in the stomach and side, but seemed to be otherwise in good health. One day after dinner she complained several times of pain; she drank some succory water as a stomachic, and putting the cup down with one hand, with the other she pressed her side, and said in a voice which betokened much suffering, 'Ha! what a stitch in the side! what pain! I cannot bear it.' Speaking these words she flushed, and a moment afterwards turned pale, with a wan lividity which astonished everybody. She kept crying out, and begged to be carried away, for she could no longer hold up. Supported by the arms of others she managed to walk, but with difficulty, and bent double. Put to bed she cried out more than ever that the pain in the pit of her stomach was past belief; she turned from side to side. A physician was fetched, who pronounced her complaint to be colic, and who prescribed suitable remedies. But the pain continued; she said that her suffering was greater than could be conceived, and that she would die. All this occurred in less than half an hour. Whatever she swallowed made her retch; she brought up only a little mucus mixed with food. The efforts to vomit and the excessive pain threw her into a state of exhaustion which resembled repose, but she told the bystanders not to deceive themselves, that the pain was as great as ever, and that she had no strength left to cry out. She heard some one remark that she was easier, and she said, 'That is so far from being true, that were I not a Christian I would kill myself, so great are my sufferings. It is wrong to wish evil to any,' she added, 'yet I would that somebody could feel for a moment what I feel, so as to know what my pain is like.' Her pulse became imperceptible, her limbs cold; her friends anxiously asked if nothing more could be done; they suggested a score of remedies, and at last her physicians in sheer desperation made an attempt to bleed her, but the blood would not flow. They gave her some broth, for she had taken no food since dinner. She no sooner swallowed it than her sufferings increased; she complained that her stomach was filling up. Death was painted on her face; the last struggle was short, and after two or three convulsive movements about her mouth she died—nine hours from the beginning of her illness."

This account, the original of which was written at the end of the seventeenth century by one of the Maids-in-waiting, is so graphic that it will serve without comment as an illustration of much that I shall presently have to say.

* *New York Medical News*, April 25th, 1896.

We may now pass in review the cardinal points in a typical case of perforation.

Onset.—The final rupture appears to happen frequently about *two hours after a meal*, or is brought about by some quick movement or strain, such as coughing, laughing, or lifting a weight. In many cases it suddenly occurs without any obvious reason, and there are several instances of the ulcer perforating while the patient is in bed.

Pain.—*Sudden* excruciating pain in the epigastric region is almost invariable, and is probably caused by the extravasation of the hyper-acid gastric contents. The pain is often at first definitely localised, and this may be of great help in the diagnosis, but it usually soon becomes generalised. It is sometimes felt in the back between the scapulæ, and in duodenal perforation may be marked in the right hypochondrium. Sometimes it appears to be referred to the inguinal or hypogastric region.

Shock.—The shock thus caused is very intense, and may prove instantly fatal, as in a case mentioned by Mr. Maurice of Reading,* where a servant girl was found dead on the stairs from this cause. Though this is unusual, the subsequent *collapse* is, as a rule, very severe; it varies, however, in degree, and may be almost absent.

Abdominal rigidity.—The abdomen at first is often retracted, and nearly always rigid or "board-like," the contraction of the left rectus being sometimes especially marked—a point which should always be looked for.

Tenderness.—There is usually marked tenderness in the epigastrium—an important symptom, I think.

Absence of liver dulness.—Even at an early stage free gas in the peritoneal cavity may cause obliteration of the liver dulness; if this be absent, it is a valuable sign. This should always be investigated, though it is by no means invariably trustworthy. In cases where the foramen of Winslow has been sealed by adhesions, perforation into the lesser peritoneal sac may admit of the persistence of an impaired percussion note. In these instances the apex-beat of the heart may be displaced, with symptoms of so-called subdiaphragmatic pneumothorax, as in cases described by Dent† and Bennett.‡

Respiration.—The respiratory movements are shallow, and usually limited to the thorax. There may be dyspnœa, especially in cases such as the two just mentioned, probably caused by pressure on the diaphragm. A point not generally looked for is the absence of Litten's "diaphragm phenomenon," to which Weir calls attention.§ It consists of the successive recession of the lower intercostal spaces on inspiration, corresponding to the descent of the diaphragm. Weir thinks it might be absent on the side where perforation had occurred, that half of the diaphragm sharing in the general rigidity. This I have been unable to observe, and I think the sign would be a difficult one to be sure of in any but the sparest subjects.

Pulse.—This is as a rule frequent, feeble, and fluttering, but may be small, hard, and wiry, though this character is not usually observed till later.

Vomiting.—Dreschfeld stated in 1888 that vomiting was absent in cases of perforation, and Treves (*System of Surgery*, vol. ii, 1896) concurs with this view; but the reports of recent cases in no way bear out this assertion. In Weir and Foote's list vomiting was certainly present in 36 per cent., while in only 8 per cent. (four cases) was it stated to be absent. In the others the point was unfortunately not noted.

Struve's experience was that it occurred in two thirds of all cases of perforation, and was only likely to be absent where the aperture was large.

In my list of thirty cases vomiting was recorded in twenty-one, or 70 per cent.; not mentioned in seven, and stated to be absent in only two, or 7 per cent. In most instances the vomiting occurred soon after the perforation, and was not repeated more than two or three times. Vomiting of blood is very rare; in no case is it definitely mentioned. In three cases the vomit was remarked to have been dark, having in two a "coffee-grouts" appearance.

A valuable sign of rupture is the immediate pain, and often vomiting, at once brought on by anything, such as brandy, which the patient may have been unwise enough to take by mouth. In a few instances surgical emphysema of the abdominal wall has been remarked.

Temperature.—During the period of shock the patient presents the usual well-known appearance, being cold with blue extremities, and in many instances the thermometer has shown a subnormal temperature. After an hour or two the temperature frequently has been recorded to have risen rapidly to 101° or 102°—a valuable diagnostic sign, as Mr. Barling points out.‖

Reaction.—After the initial stage of shock most authorities appear agreed that there is a period of reaction before symptoms of peritonitis and septic intoxication set in. The pain becomes less severe, the pulse improves, and the patient appears altogether somewhat better. Where operative procedure is practicable, this is the opportunity that should be seized. In many cases, however, little or no reaction is manifest, and the symptoms of collapse merge into indications which are still more alarming. The pain becomes diffused over the whole abdomen, which is now distended and tympanitic—the liver and splenic dulness being lost—and exquisitely tender. The knees may be drawn up, and the respiration is entirely thoracic. The expression is anxious, the well-known Hippocratic facies being frequently observed; and the temperature in many instances at this stage has been found to be over 100°, while the pulse is quick and wiry. In fact, there is now the usual picture of what Gübler terms "peritonism."

If no operation has been undertaken for the relief of the trouble the patient rapidly sinks, usually dying in a few days, though the end may come in as many hours. The shortest time in which death occurred at St. Bart.'s was seven hours, the longest fourteen days. Death may be due to shock, collapse, peritonitis, or other septic complications. A case of death from shock has already been mentioned, and another instance may be cited from our hospital records. A boy, under treatment for appendicitis, suddenly died. At the post-mortem, although there was a distinct perforation, there was no peritonitis in the neighbourhood.

(To be continued.)

* *Lancet*, 1894. † *Lancet*, 1896, vol. i, p. 1718.
‡ *Ibid.*, vol. ii, p. 310. § *Loc. supra cit.*
‖ *Birm. Med. Rev.*, 1896, vol. xl, p. 321.

Some Notes on the Plague.

By ARCHER W. R. COCHRANE, M.B.(Lond.), M.R.C.S., L.R.C.P.,

Surgeon-Lieutenant, Indian Medical Service; formerly Extern Midwifery Assistant, St. Bartholomew's Hospital.

IT is with the greatest diffidence that I venture to write an article for the JOURNAL on a subject of which my knowledge is but superficial. But yet having gained by personal experience some knowledge of a disease which in England is happily not now seen, I thought that it might be interesting, and perhaps even helpful, were I to relate some of its characters as I have learnt them, and the part I was appointed to play in combating the disease. Beyond my personal experience I will not venture, except in the most general terms where it seems to me necessary.

The Plague, or Bubonic Disease, is, as is well known by all, by no means a new disease, and of all its ravages the Black Death comes soonest to memory; this, despite the descriptions of novelists, was undoubtedly the same disease, and took its name from the greater number of the pneumonic cases of the fever which I will presently describe.

The Plague, though not endemic in India, is constantly present in certain Eastern places, of which lately China has been, *par excellence*, the one chosen. In the two successive years before the disease reached Bombay it was raging in Hong Kong. It was in August, 1896, that the first cases occurred in Bombay, though the disease was not generally recognised as such until two or three weeks later. The links connecting the disease with that still existing in Hong Kong are not difficult to forge, nor is it difficult to see why Bombay was attacked. This town is an immense one with a

large maritime trade, and in point of population is larger—of course excepting London—than any British town. It is a city built on islands, though, as far as I could see, these islands are only made such by shallow tracts of water and marshes. The air and soil are thus kept constantly saturated with moisture, the ground water is at high level, and so the absorption of watery refuse—a mode of drainage much in favour with the natives—is largely prevented: these conditions, being favoured by the heat, aid decomposition of organic matter, which goes on rapidly on the surface of the ground. So, with the overcrowding of the inhabitants, and their general habits of uncleanliness and poverty, we have here all the conditions usually associated as most favourable for the spread of contagious diseases. The causation of the disease is clearly proved, to my mind, to have taken place by means of the rats in the ships trading with China. That rats were dying in large numbers was soon noticed, and when post-mortem examination was made a general glandular enlargement was found, from which glands it was easily possible to obtain Kitasato's bacterium. Many, indeed, considered that the disease was chiefly conveyed in the grain, but Mr. Hankin has clearly shown that the bacterium cannot live more than a very few days in any sort of grain.

On the recognition of the disease its importance was grasped by the late Surgeon-General of Bombay; but the Government of India, always slow to move, would not then countenance the extreme measures that were recommended as necessary, such as segregation, isolation, and house to house visitation. Later all these were employed,—not, however, till the disease had developed most alarmingly in the city, and spread over very wide areas in the Presidency.

It was undoubtedly shown that this tardy effort at stamping out the disease was attended with much harm; it must be remembered, however, that the disease was in India, *i. e.* in a country peopled by ignorant masses, whose whole life is built up on the question of caste, which is dearer than life itself, and any apparent violation of which is resisted to the death. This caste is the stumbling-block of all reforms, and must be considered in all our dealings with the Hindoo population; in the same way with the Mussulmans, the purdah system is at the root of their life. To institute any apparent interference with these prejudices an extremely strong cause must be shown.

Among many others, in the beginning of February, 1897, Mr. Walton (formerly house surgeon to Sir Thomas Smith) and I received orders to go on special plague duty; we travelled down from the Punjab together, some sixty hours in the train, and on the way held long discourse on our good fortune, which undoubtedly would lead to our rapid promotion, and to our being generally recognised by the Government for our valuable services. Since then we are wiser.

While waiting in Bombay for orders we proceeded to learn what we could of the plague by visiting the hospitals to gain clinical experience, and the laboratories to learn about the microbe and its wicked ways. From the pathologist we learnt that the microbe was an easily discoverable one, and he courteously gave us all the information that he could. He also warned us against being inoculated by Haffkine's preventative serum, which was at that time in its infancy; he had been inoculated himself, and had been made rather ill for about a week, and he did not think anything had been proved of its efficacy at that time to compensate for this. As we were not very keen we accepted his advice. Our first cases of the disease we saw in a building called the Arthur Road Hospital. This was a long shed divided into two for the sexes; the flooring was made of dry mud, which, on inquiry, I learnt had been in the dirty condition in which I then saw it for some months, dating from the time when the shed had been used for ordinary infectious diseases. At one end of the men's half were some twenty convalescents, separated only by an interval of a few feet from some fifty men lying about on bare bedsteads in all stages of the disease. In all there were some hundred sick, for which three Sisters of Mercy were doing the little they could to relieve the general misery, which to be realised must have been seen. There was also a non-medical gentleman working there, who was merely on a visit to the country, primarily made for pleasure, but who had stayed in Bombay to do his best in the nursing of the patients.

After two or three days Mr. Walton and I were sent different ways on railway inspection duty, with but the most general orders as to the work required. Arriving at Ahmedabad station with the title of Chief Medical Inspecting Officer, Plague Duty, Ahmedabad, I had to arrange all the details for carrying out the inspection and the isolation and treatment of suspected or actual cases. With the kind help of the local authorities of the town, the civil surgeon, the railway police, and my assistants, the following arrangement was made and acted on:—An isolation and a plague hospital were erected about half a mile from the station; each of these consisted of detached rows of huts, four or five in each row, made of bamboo, grass matting, and grass roofs. The two hospitals were some two hundred yards apart, and each under the immediate charge of a native medical assistant, with an apothecary and some policemen. To the isolation hospital all cases of indefinite fever were sent; these would remain here for some twenty-four hours, or till the cause of the fever was recognised. If it were plague the case was sent to the plague hospital, and the shed which the patient had inhabited was burnt; while when one was satisfied the patient was free of the plague he was discharged. Definite plague cases were taken straight from the train to the plague hospital. One friend was to accompany the patient, remain with him, and look after him. If the patient died the friend

was to be kept some six days, and then allowed to go after his clothing had been disinfected.

At the station some ten trains a day had to be inspected, and the method of examination I adopted was this:—All carriage doors were locked at the preceding station, and only opened in the presence of an examining officer, when all the passengers in it were examined. I quickly found out that the disease could not exist without fever, and also that, had a man fever, it was impossible to tell in the absence of other signs whether he had plague or not. Therefore in examination only the presence or absence of fever was sought for, and every case of fever detained, however slight it might be. When more experienced I did not keep rigidly to this last part. In examinations at most of the other stations glands were always sought for; this, however, seemed to me, in the absence of fever, to be a useless annoyance. After a few weeks I found that a thermometer was only wanted very rarely, and that a temperature of 99·6° F. could be readily told by the hand on the chest or arm of the individual, even at a time when the temperature of the air stood at 110° F. in the shade. To count the pulse was, apart from other signs, useless, as the fact of being examined caused the pulse to rise immensely in rate, and very often to become markedly irregular. As may be supposed, this work, lasting over four months, became very monotonous; however, even here there were enlivening incidents. One of these arose when I was examining some negroes in the retinue of a prince. Circumstances occurred in which I had to knock one of them down, whereupon getting up he promptly drew a large curved knife (of which he had more than one in his belt) and made a rush at me; luckily for me his intentions were frustrated. Another incident, somewhat less dangerous and much more pleasant, was, on my going to examine a carriage, finding two Bart.'s nurses, who, however, defied my authority, and whose great idea was to get some breakfast and not be kept waiting. I learnt that they were proceeding with some more nurses on plague duty to Mandvi, in Cutch, a place where the disease was at the time extremely bad, both in virulence and in the number of cases.

The characteristics of the disease as I noticed them were briefly as follows:—Cases could be broadly divided into those with a sudden onset and no premonitory malaise whatever, and those in which two to four days of an indefinite fever preceded the generally sudden onset. A Eurasian railway guard aged twenty-six years was suddenly seized, whilst on duty in his van, with a feeling of feverishness, dizziness, and headache; he almost immediately began to vomit and suffer from an acute pain in the left groin. On seeing him twenty minutes after the onset I found him unable to stand, his face pinched and white, skin hot and dry, temp. 103°, pulse small; vomiting a frothy fluid from time to time, and complaining of much pain and tenderness in the groin. Here I found a swelling situated over Scarpa's triangle, slightly reddened and very tender, the patient keeping the leg slightly flexed. Symptomatic treatment relieved him, and his condition of collapse did not increase. After seventy-two hours the vomiting ceased; the enlargement in the groin was less tender, but larger; in forty-eight hours all marked symptoms had disappeared, his only complaint being that of weakness: the glandular character of the enlargement was now readily made out. In ten days the patient was quite convalescent, and the glands had practically disappeared. Had the man been an attenuated, ill-nourished native with fatalistic ideas, death would probably have taken place within a few hours of the onset, as in many such cases that occurred.

Another case illustrating the less sudden onset would be that of a native removed from the train to the isolation hospital on account of fever (temp. 101°, no other symptoms), all the time loudly protesting against being considered in any way ill. For two days the patient continues with slight fever only, and many protestations as to perfect health; at the morning visit of the third day the patient would perhaps be seen sitting on his cot looking dazed, and appearing dizzy on trying to stand up out of respect. The temperature is now, say, 104°; he still says he is well, but is not so persistent, and on examination a slight swelling in neck, axilla, or groin may be discovered. Twelve hours later the patient would be found lying down, and perhaps for a moment able to recognise his surroundings, but is for the most part delirious, the delirium generally being one of a low type—the pulse feeble, intermittent, and irregular; temp. 104·5°. One learns that he has sunk rapidly into this state without any effort on his part to rouse himself, that he has complained but little if at all. Some six hours later, after a gradual increase in intensity of this typhoid condition, the patient dies. The glandular enlargement during the last eighteen hours, if present, becomes more marked, and perhaps appears elsewhere.

Such were many of the cases, but a not uncommon variety of the disease, occurring after either form of onset, was what might be called the pneumonic form of the plague. In these cases, as often as not with no glandular enlargement, there was rapid development of marked pneumonic symptoms with much cyanosis and dyspnœa, attended with marked collapse; at the same time the usual pneumonic signs in the lungs were absent, the appearance of moist sounds over the lungs, generally increasing with the progress of the disease, alone being discoverable. These pneumonic cases were among the most generally and rapidly fatal, and were attended with comparatively little cough or pain, but with marked circulatory collapse. Indeed, in all cases it seemed as if the heart suffered directly and severely, and the nervous system secondarily from the action of the plague poison: death was due in every case to cardiac failure.

When patients recovered the convalescence was rapid, as

might be judged from the generally short duration of an attack.

Owing to the circumstances in which I was, the performance of post-mortems and the working at the bacteriology of the disease was an impossibility. However, from the Professor of Pathology at Bombay I learnt that post mortem a fairly general enlargement of the internal glands could in all cases be found, even when during life there had been no external manifestations; that in the pneumonic cases an acute congestion of the lungs was to be met with; and that from such the bacteria could be readily cultivated from the glands, lungs, and spleen, and also from the sputum and vomit of the patient during life. These bacteria are slightly oval cocci, tending to occur as diplococci. They stain readily with the ordinary dyes, grow on gelatine and agar-agar in a characteristic way, and answer to Koch's canons, the identity of the disease as appearing in rats and man being allowed.

In the absence of an epidemic, diagnosis, apart from bacteriological work, would often be extremely difficult, and it would be necessary to depend on the fever of short duration, with, however, rapid and marked collapse, with or without signs of glandular enlargement. In the pneumonic cases marked dyspnœa and collapse with but few signs in the lungs, and a fever of short duration, would point to plague. The bacteriological examination is best made from the sputum or, after aseptic precautions, from the removal of a small quantity of the sanious fluid contained in a swollen gland by a hypodermic syringe.

The finding of the microbe in the lungs, glands, and spleen shows that the disease is one of general infection of the whole body. But it is open to doubt whether this is so from the commencement in all cases; for sometimes a local glandular swelling with but slight fever is found, which perhaps may go no further; while, on the other hand, all the phenomena of plague may develop. It is argued that we have here a local infection from the skin, an infection of slight intensity, which is stopped by the gland from becoming general. However, these may be slight cases of a general infection primarily, apparent only by the above slight signs. That post mortem many more glands are found affected than were suspected is to my mind an argument for general infection in all cases from the first. Indeed, local treatment to a gland has never shown any good result, as is the case in the treatment of the malignant pustule of anthrax.

As regards the channels of infection, that by means of the skin through cuts and abrasions was at first largely exaggerated, and was based on the then generally accepted view of the disease as being at first a local one. Infection by the air-passages is proved, I think, by the great number of cases in which the affection of the lungs is the first and most prominent feature, and by the very great quantity of bacteria to be found in them in such cases; that the mouth may be the channel seems possible by the presence of the bacteria in the vomit.

The advanced disease at any rate being due to a general invasion of the body, it will readily be seen what great care must be taken in dealing with any of the excreta, for, by analogy with such a disease as typhoid, the intestinal and renal excreta will be as infectious as the sputum and vomit, in which I have seen crowds of bacteria. In dealing with a case the nurses, attendants, and doctors should remember this, and act accordingly; for their own safety they should be extremely careful in keeping their hands clean, remembering that a brush, soap, and water are far better when used vigorously than a perfunctory dip in some antiseptic lotion. The mere attendance on the patient, provided this is within reason, seems almost without danger, and can, I think, rightly be compared to that on a case of typhoid fever.

Apart from the serum methods, the treatment of plague is essentially one of stimulation, and in no disease is the presence of a skilled nurse more needful, for the doctor cannot be present except at intervals. The sudden changes to which the patient is subject require a skilled and almost constant attendance for the proper and timely administration of stimulants, which, owing to the rapidity of the disease, should be pushed from the very first. Strychnine, brandy, and rum, with digitalis, were the medicines I chiefly used, but I formed no predilection. The local treatment resolves itself into fomentation, with belladonna if there is much pain, of the swollen and inflamed glands. Should pus form, though this is not usual, it should be let out at once. There is no call for the incision of the gland in the earlier stages, or its irritation by iodine, &c. This I have seen employed on the idea that if the gland suppurated rapidly all would be well, and this in cases where the patient was manifestly suffering from a general invasion. As regards the serum treatment of the disease, I know nothing at first hand; from one who had watched Yersin's treatment in Bombay I gathered but gloomy tidings; indeed, this cannot be surprising seeing how rapidly the disease develops, the patient getting almost immediately overwhelmed with the toxins. Of Haffkine's preventative serum there is much more hope; it would, however, be idle to speculate on this from the few statistics at present available. The direct effect of the inoculation of his serum was after two or three days a feeling of malaise, with fever 101°—103°, often making the subject keep to his bed and feel extremely sorry for himself. One or two glands became enlarged; the whole illness, however, subsiding after a duration of two or three days, with no subsequent ill effects.

The disposal of the dead is a matter of serious consideration; and fortunately burning—the best method—is in accordance with the religious customs of the Hindoo. With the Mussulman, however, the plan of placing quicklime with the bodies was thought to be the most effective method, which was done, though not without a good deal of objec-

tion at first. Luckily, however, their leaders were able to find and translate a passage in the Koran which allowed this, and so all parties were satisfied.

When the patient gets well his convalescence is rapid, as in the case of the guard I previously mentioned, who within four weeks was back at his work, apparently not much the worse.

Of the death-rate of the disease, its course as regards seasons, its method of convection over the country, the methods of segregation, house visitation, &c., all of which are extremely interesting, I do not wish to speak. They were beyond my personal observations, to which in the above account I have kept as closely as possible.

Notes.

THE presentation of the testimonial and picture to Mr. James Berry, to which we alluded in our last number, will be made in the Library on Thursday, March 24th, at 5 o'clock. Subscribers and others will be glad to have this opportunity of publicly expressing their high appreciation of Mr. Berry's work as Surgical Registrar.

* * *

To Sir Thomas Smith's resignation—the event of the month—we have alluded elsewhere. The election of a Surgeon to fill the vacancy will take place on Thursday, March 24th.

* * *

OUR readers are reminded that communications with respect to subscriptions, &c., should be sent to the Manager, Mr. W. E. Sargant, and *not* to the Editor.

* * *

MR. BUTLIN gave the first Hunterian Society Lecture for 1898 at the London Institution on February 23rd. He took as his subject, "What Operation can do for Cancer of the Tongue."

* * *

MR. WARING'S Erasmus Wilson Lectures on "The Pathology and Treatment of those Diseases of the Liver which are amenable to direct Surgical Interference" were delivered at the Royal College of Surgeons on February 21st, 23rd, and 25th.

* * *

MR. C. TODD, B.A., has taken the degree of M.D. in the University of Cambridge.

* * *

MESSRS. A. E. JEAFFRESON, C. S. MYERS, T. H. MOLESWORTH, H. W. SHEWELL, and J. G. FORBES have taken the degrees of M.B. and B.C. of the University of Cambridge.

* * *

DR. J. CALVERT has been re-elected Demonstrator of Materia Medica and Pharmacy.

* * *

DR. J. MORRISON has resigned the office of Assistant Demonstrator of Physiology.

THE office of Assistant Demonstrator of Materia Medica and Pharmacy is now advertised as vacant.

* * *

DR. W. J. HORNE has been appointed Casualty Physician, *vice* Dr. J. Hayward resigned.

* * *

MR. A. EICHHOLZ, Emmanuel College, Cambridge, has been appointed one of Her Majesty's Inspectors of Schools.

* * *

WE are requested to call attention again to the claims of Horace Dewick Sawtell on the Governors of the Royal Medical Benevolent College, Epsom. He makes his third application for a Foundation Scholarship in May next, and has already polled 1750 votes. The case is strongly recommended by Dr. Gee, Sir Dyce Duckworth, Dr. Champneys, Mr. Butlin, and Dr. Shore, among others. Proxies will gladly be received by Mrs. Oliver-Smith, 5, South Row, Blackheath.

* * *

WE note with surprise the decision of Mr. Sheil at the Westminster Police Court that although a medical man may be struck off the register for certain offences, this does not disqualify him from continuing to practise. If this be so, what does the disciplinary authority of the General Medical Council amount to, and what protection does it afford to those who are still within its fold? The matter can hardly be allowed to rest here.

* * *

PROFESSOR KANTHACK and Dr. LLOYD JONES have been appointed Surgeon-Lieutenants of the Third (Cambridgeshire) Volunteer Battalion, the Suffolk Regiment. In the Third Volunteer Battalion the Cheshire Regiment Surgeon-Lieutenant E. T. Sidebotham has resigned his commission and been appointed Captain. Surgeon-Lieutenant-Colonel John Adams, of the Twenty-first Middlesex (the Finsbury) Volunteer Rifle Corps, has had the Volunteer Officers' Decoration conferred upon him.

* * *

AT the recent examination for the Indian Medical Service three Bart.'s men were successful. Dr. H. B. Meakin secured the third place, Mr. H. Boulton was seventh, and Mr. Twigg thirteenth.

* * *

WE greatly regret to announce the death of Miss McDougall, formerly a Bart.'s nurse, of plague, on February 23rd at Bombay. She had but recently left the Hospital to undertake special plague duty in India. As to her ability as a nurse, the fact that she obtained the Gold Medal in her final examination is a sufficient testimony. Great sympathy will be felt by all with her family in their sad bereavement.

* * *

THE Anthropological Expedition to Torres Straits, New Guinea, and Borneo, which started under the leadership of Prof. A. C. Haddon, on March 10th, included two Bart.'s

men, Dr. W. H. R. Rivers, formerly House Physician to Dr. Gee, and Mr. C. S. Myers. They intend to devote themselves more especially to the experimental psychology, which is to form a prominent part of the work. The expedition lasts about a year, and we wish them all success in their enterprise.

Amalgamated Clubs.

NEW MEMBERS.

H. R. Kidner.	W. M. Fletcher.
R. Ucros.	G. Gomez.
H. T. George.	L. B. Bigg.
W. H. W. Attlee.	R. B. Coare.
C. Blair.	W. V. Naish
T. G. M. Hine.	C. F. Nicholas.
A. H. Bateman.	H. J. Gauvain.
H. E. Thomas.	R. H. Urwick.
J. McBryde.	R. L. V. Foster.
T. B. A. Haggard.	F. E. Murray.

RUGBY UNION FOOTBALL CLUB.

ST. BART.'S *v.* LENNOX.

Played on January 15th at Dulwich. A very close game resulted in our defeat by a try to nil. Our team was weakened by the absence of Body, Mason, and Walker, and, under the circumstances, our performance against the powerful Lennox team was very creditable. In the first half our forwards, playing a capital game, attacked strongly, and gave the outsides several opportunities. The home defence was good, however, and we could not score. After half-time the game was very even, until the last minute of the game, when one of the Lennox's three-quarters scored after a clever run, and we were therefore somewhat unluckily beaten.

Team.—C. A. S. Ridout (back), A. J. W. Wells, T. A. Mayo, C. Dix, J. M. Plews (three-quarters), A. W. Nuthall, W. C. Hirst (halves), W. F. Bennett, C. H. D. Robbs, H. C. Adams, A. M. Amsler, M. B. Scott, A. O'Neill, J. A. West, H. G. Boyle.

ST. BART.'S *v.* OLD LEYSIANS.

January 22nd at Winchmore Hill. We met with a most unlucky defeat by a dropped goal (4 points) to a try (3 points). At the beginning of the game we rushed the ball down, and within a few minutes Robbs receiving a pass from Mason crossed the line. The kick, however, failed. We continued to have the better of the game, but could not add to our score. In the second half the Old Leysians' back took an excellent drop kick which landed between the uprights. In its flight the ball was touched by Bennett, but this was not noticed by the referee, who allowed the goal. This reverse demoralised us, and for the rest of the game we were hard pressed.

Team.—H. Goodman (back), S. Mason, C. Dix, T. A. Mayo, C. A. S. Ridout (three-quarters), H. Walker, W. C. Hirst (halves), W. F. Bennett, A. J. W. Wells, C. H. D. Robbs, A. M. Amsler, M. B. Scott, A. O'Neill, J. A. West, N. Maclaren (forwards).

ST. BART.'S *v.* HARLEQUINS.

January 29th at Catford. A hard game against London Hospital on the preceding day had worked havoc amongst our team, and only seven of the Cup Tie team turned out. We met with a severe defeat by 27 points to nil. For the first quarter of an hour we held our own fairly well, but afterwards had to act chiefly on the defensive. The Harlequins had two good halves, and were able to feed their three-quarters continually. They scored three times in the first half, four times in the second. For us, Mayo, Bennett, and O'Neill were several times conspicuous in defence.

Team.—C. O'Brien (back), S. Mason, T. A. Mayo, C. A. S. Ridout, J. M. Plews (three-quarters), W. H. Scott, F. F. Shout (halves), W. F. Bennett (capt.), A. J. W. Wells, C. H. D. Robbs, A. O'Neill, J. A. West, N. Maclaren, H. E. Stanger-Leathes, F. Harvey (forwards).

ST. BART.'S *v.* NORTHAMPTON.

February 5th at Northampton. This match resulted in a loss by 8 goals and 1 try (43 points) to a try. The home team had a very clever lot of outsides, and completely outplayed us. Bart.'s forwards played a good game, and several times took the game into our opponents' twenty-five. Mason on two occasions made excellent shots at dropping a goal, his kicks only just going wide. Our try was scored by Walker from a pass by Mayo.

Team.—T. M. Body (back), S. Mason, T. A. Mayo, G. C. Marrack, A. J. W. Wells (three-quarters), H. Walker, W. C. Hirst (halves), W. F. Bennett, H. C. Adams, A. M. Amsler, A. O'Neill, J. A. West, G. H. Adam, L. R. Tosswill, N. Maclaren.

ST. BART.'S *v.* MARLBOROUGH NOMADS.

February 12th at Winchmore Hill. Bart.'s started well, and for the greater part of the first half we pressed. Body dropped an excellent goal from outside the twenty-five. The Nomads scored just before half-time. We crossed over leading by 4 points to 3, and immediately added to our advantage, Mayo crossing the line after a good dribble by O'Neill. The Nomads improved immensely after this, and scored three times, winning by 18 points to 7. It should be mentioned that Mason had to retire early in the first half, and Bennett was also injured, so that for the greater part of the game we had only six forwards in the scrum.

Team.—T. M. Body (back), S. Mason, C. Dix, T. A. Mayo, A. J. W. Wells (three-quarters), H. Walker, W. C. Hirst (halves), W. F. Bennett, C. H. D. Robbs, H. C. Adams, A. M. Amsler, A. O'Neill, J. A. West, J. M. Plews, L. R. Tosswill.

ST. BART.'S *v.* EAST SHEEN.

Wednesday, February 16th, at Richmond. The home team had a powerful team, and beat us by 2 goals 1 try to nil. The game was much more even than the score would represent, and it was only our weakness in attack that prevented our scoring. The loss of Bennett and Mason was greatly felt. With the wind in our favour we had the best of the first half, and should have scored on one or two occasions. Our opponents scored twice from the line out. Adams, O'Neill, and Adam played a hard game throughout.

Team.—H. Goodman (back), J. C. Sale, C. Dix, T. A. Mayo, A. J. W. Wells (three-quarters), W. C. Hirst, W. H. Scott (halves), C. H. D. Robbs, H. C. Adams, A. M. Amsler, A. O'Neill, J. A. West, G. H. Adam, L. R. Tosswill, H. L. Stanger-Leathes.

INTER-HOSPITAL CUP TIE.

SECOND ROUND.—ST. BART.'S *v.* KING'S.

This match was played on Tuesday, February 8th, at Richmond, and resulted in a victory by 1 goal and 2 tries (11 points) to nil. Winning the toss we had the advantage of a slight wind. Directly the teams turned out a sharp shower began, which lasted for some fifteen minutes. During this time the game was very evenly contested, our opponents showing good defence. At length a bombardment of their line resulted in Hirst scoring a try, which Bennett converted. We scored once more before half-time, Mason running over close to the touch line—the kick failed.

After ends were changed Bart.'s opened out the game. The outsides were given several chances, but the wet ball prevented accurate passing. On one occasion, however, a good bit of play resulted in Wells running round. The kick again failed.

On the whole our play was ragged. The forwards were not nearly so good as usual, though much heavier than the opposing eight. The outsides at times did well, but were slow. Goodman did his work well at back. King's deserve credit for the good fight they made. Their halves were both good, and their forwards untiring.

Team.—H. Goodman (back), S. Mason, T. A. Mayo, T. M. Body, A. J. W. Wells (three-quarters), H. Walker, W. C. Hirst (halves), W. F. Bennett, C. H. D. Robbs, H. C. Adams, A. M. Amsler, A. O'Neill, J. A. West, G. H. Adam, L. R. Tosswill (forwards).

SEMI-FINAL.—ST. BART.'S *v.* ST. THOMAS'S.

Played at Richmond on Tuesday, February 22nd. Bart.'s won the toss, and St. Thomas's kicked off against a slight wind. The ball was badly returned, and play settled close to our 25. Several scrums took place, in which neither side could claim any advantage. At length some good work by our forwards gained ground, and Mayo made an excellent run into our opponents' 25. Directly after this a great misfortune befell us—Mason was heavily grounded, and was so badly hurt as to necessitate his retirement. O'Neill took his place at three-quarters. With seven forwards we held our own very well, and a strong rush very nearly resulted in Tosswill scoring, the ball going into touch in goal. Good kicking by St. Thomas's backs brought back the play to mid-field, and a smart piece of passing amongst their outsides resulted in Greg scoring. The kick just failed. After this reverse Bart.'s played up hard, and had the best

of the game for the rest of the first half. On one occasion a penalty kick was given to us, but Bennett's shot went wide.

After half-time Mason very pluckily reappeared, but was obviously unfit. Bart.'s had the best of the opening exchanges, and a strong run by Adams nearly ended in our scoring. The next feature of the game was a magnificent attempt at goal by Bennett from a free kick. His shot, which was taken well outside the 25, looked like being a goal the whole way, but just at the end the wind took it a foot outside the post. After this St. Thomas's had the best of the game until the end, but we managed to keep them out until the last ten minutes, when they scored three times, and won the game by a goal and three tries to nil.

It was a great misfortune for us to lose Mason so early in the game. A little luck in the first half might have altered the whole course of the match. As the game went, however, there is no doubt that Thomas's deserved to win. Their combination was much better than ours outside, whilst forward there was very little to choose between the teams.

Team.—T. M. Body (back), S. Mason, C. Dix, T. A. Mayo, A. J. W. Wells (three-quarters), W. C. Hirst, W. H. Scott (halves), W. F. Bennett (captain), C. H. D. Robbs, H. C. Adams, A. M. Amsler, A. O'Neill, J. A. West, G. H. Adam, L. R. Tosswill.

ASSOCIATION FOOTBALL CLUB.

ST. BART.'S *v.* CASUALS.

Played at Tufnell Park, February 2nd. Won by 3 goals to 2. The Casuals won the toss, and started with a strong wind in their favour, and the first stages of the game were confined to the Bart.'s territory. The Hospital defence took some time to settle down, and the Casuals soon opened the score; they continued to press, only failing to score again by bad shooting.

The Hospital forwards having a new centre did not settle down at first, but after the Casuals had added another goal they broke away with a pretty run, which ended in Thomas beating Harrison. Just before half-time Ward's ankle went, and Marrett was knocked out, so on crossing over the Casuals led by 2—1, and Bart.'s had to re-start without Ward, and with Marrett *hors de combat*. However, aided by the wind they held the upper hand throughout, and were able to score two more goals through the agency of Willett and Thomas, and Bart.'s left the field victorious.

For Bart.'s Thomas appeared for the first time, and proved himself a vigorous centre forward, with a good knowledge of the game. This enabled Whitaker to partner Orton at back, with the result of greatly improving the defence: these two played a sound game, and were well backed up by Butcher in goal. Of the halves Scholefield and Watson as usual tackled excellently, but they must pay more attention to feeding their forwards—keeping the ball on the ground as much as possible. All the forwards played a good game; indeed, the team is improving greatly, and should do well in the Hospital Cup Tie when they meet London in the Semi-final.

Team.—H. H. Butcher (goal), L. Orton, L. E. Whitaker, E. H. Scholefield, C. G. Watson, A. H. Bostock, H. N. Marrett, J. A. Willett, H. E. Thomas, V. C. Ward, G. W. Stone (forwards).

ST. BART.'S *v.* BECKENHAM.

At Winchmore Hill on February 5th. Result: a win for Bart.'s by 4—0.

Beckenham were not very strongly represented. Bart.'s having all the game in their own hands showed good combination; they gave, however, a bad exhibition of shooting, several very easy chances being missed. The goals were got by Marrett, Willett, Whitaker, Stone, but the score should have been much greater.

Team.—H. H. Butcher, L. Orton, L. E. Whitaker, E. H. Scholefield, C. G. Watson, A. H. Bostock, T. H. Talbot, J. A. Willett, H. E. Thomas, G. W. Stone, H. N. Marrett.

ST. BART.'S *v.* IPSWICH.

Saturday, February 12th, at Ipswich. St. Bart.'s were beaten by 4—2. Whitaker, Willett, and Ward were away from the Hospital team.

At the start Ipswich pressed, but Bart.'s were the first to score, Thomas putting the ball through from a centre by Talbot. But before half-time Ipswich scored 2 goals, both due to mistakes by Bart.'s, though Butcher had no chance with either.

In the second half Ipswich managed to add 2 more goals, and Bart.'s 1, Thomas again scoring.

The game was very even throughout, and if Bart.'s had all played up to form they would probably have won, though Ipswich had a strong defence. Talbot and Waterhouse were in great form on the right wing, and Thomas was always ready in the centre. Of the defence Orton and Scholefield played well, but the rest were inclined to be slack, and did not play up to form.

Team.—H. H. Butcher, L. Orton, C. H. Turner, E. H. Scholefield, C. G. Watson, A. H. Bostock, T. H. Talbot, R. Waterhouse, H. E. Thomas, G. W. Stone, H. N. Marrett.

HOCKEY CLUB.

ST. BART.'S *v.* BLACKHEATH 3RD XI.

Played at Blackheath on February 5th.

Our opponents put a strong team in the field, one first and four second team men being included. We only had ten men, and the half-backs were very weak. At half-time the score was 3—1 against us, and finally we lost by 8—3. Bull (2) and Muirhead scored the goals.

Team.—Nicholson, Jeaffreson (backs), Roberts, Gandy, Frost (halves), Davies, Johnson, Muirhead, Bull, Edwards (forwards).

ST. BART.'S *v.* KINGSTON SCHOOL 2ND XI.

Played at Winchmore Hill on February 9th.

We managed to beat our somewhat youthful opponents by 9 goals to 1; Hallowes (3), Muirhead (3), Pennefather (2), and Davies being responsible for the scoring.

Team.—Nicholson, Jeaffreson (backs), Gandy, Flint, Boyd (halves), Davies, Pennefather, Muirhead, Hallowes, Edwards (forwards).

ST. BART.'S *v.* EPSOM COLLEGE.

Played at Epsom on February 12th.

This was a most pleasant game, and the best that the team has played. The school led by 2—0 at half-time. Hallowes scored soon after restarting, and Mayo put through from a difficult angle; but Epsom got one more goal, and won by 3—2. The halves were very good towards the end.

Team.—Nicholson, Jeaffreson (backs), Boyd, Mayo, Parker (halves), Davis, Wilmot, Muirhead, Hallowes, Edwards (forwards).

Abernethian Society.

ON Thursday, February 10th, 1898, Mr. Hussey in the chair, the Society held a meeting for discussions, clinical and pathological. Mr. Horder showed a case of exaggerated reflexes, with the interesting symptom of complete iridoplegia. No explanation of the phenomenon was proposed by any member. Mr. Drury showed a well-marked case of Erb's juvenile paralysis. Prof. Kanthack then demonstrated specimens and drawings illustrating the origin of giant-cells in leprosy. He pointed out the importance of the discovery, based upon the specimens submitted to the Society's inspection, that the leprosy bacilli lie not in the cells of the affected tissue, but almost wholly in the lymphatic vessels and capillaries. This upsets the current ideas upon the formation of giant-cells, and incidentally throws considerable light on various other points in pathological histology, notably on the origin of giant-cells in myeloid sarcoma and tubercle. The specimens shown were admirable. The President recognised Prof. Kanthack's kindness in coming from Cambridge to demonstrate part of his researches previous to their publication. This remark was loudly applauded by the members. Prof. Kanthack said that he hoped frequently to be able to give a short demonstration at the clinical evenings of the Society.

Dr. Emery exhibited specimens of secondary deposits in the skull, sternum, lungs, and liver, following a primary colloid carcinoma of the breast. Mr. J. P. Maxwell then read a short paper giving the chief points concerning the series of vaccinations performed in Abernethy in the summer of 1897. He insisted that the same care should be taken with regard to asepsis in vaccination as in any surgical operation, and endeavoured to prove from temperature charts he had had taken, that when due care to asepsis was not taken, rises of temperature due to septic absorption were by no means uncommon.

At a meeting of the Society held Thursday, February 17th, Mr. Langdon Brown, President, in the chair, Mr. Douglas read a paper entitled "Lymphadenoma." After an interesting account of the history of the disease (from which it appears that Wilks unearthed Hodgkin's original paper more than forty years after it was written and altogether forgotten), the speaker discussed whether the disease is

due to an infective process or whether it is a specific new growth of lymphatic tissue. Clinically to a great extent it appears to resemble the former, but histologically undoubtedly the latter.

After reviewing the pathology, course, and symptoms, Mr. Douglas passed into the differential diagnosis, referring to the manner in which acute lymphadenoma can be diagnosed from acute tuberculosis, typhoid, &c. The treatment was next considered; it was advised that arsenic should be pressed to its full extent. Very little faith was placed in phosphorus and bone marrow. After a lengthy and interesting discussion the meeting adjourned.

At a meeting held February 24th, Mr. Horder, Vice-President, took the chair. Dr. Emery read a paper on "The Action of Tobacco." After discussing the question of the usefulness of the drug, he rapidly cited its chief physiological effects, and went on to speak of the morbid conditions produced by its use. The chief two pathological states being—(1) "tobacco heart;" (2) tobacco amblyopia. The former may give rise to various symptoms, among the commonest being palpitation, pseudo-angioma, and the condition termed by the Americans "goneness." This last he contrasted with some of the minor forms of epilepsy. He next mentioned Clifford Allbutt's hypothesis—that neuralgia is often due to the absorption of toxic products,—and suggested that possibly the cardiac symptoms of tobacco poisoning are of the nature of a neuralgia. Dr. Emery then discussed tobacco amblyopia, and came to the conclusion from his own experience that the published statements regarding it are somewhat unreliable.

On Thursday, March 3rd, Mr. Langdon Brown, President, in the chair, Dr. Robinson read a paper on "Some Points of Interest concerning Gonorrhœa in the Female." He pointed out what an important part this disease takes in gynæcological practice, from the fact that no less than 8 per cent. of all gynæcological cases showed some effects of the disease, either immediate or remote. Three interesting cases were described and discussed to illustrate various points in the paper. Microphotographs were shown of the cocci, one of a pure culture and others of colonies which had been grown by Dr. Robinson on blood-serum and agar. He then dwelt on the reasons for vaginitis due to gonorrhœa not being a common occurrence, and on the chronic inflammation of the female urethra that causes no stricture, but which can easily be demonstrated by the cystoscope. The speaker considered that a cervicitis due to gonorrhœal infection is not infrequently overlooked, and merely regarded as a leucorrhœa, suspicions only being aroused when there suddenly appears some inflammation of the pelvic peritoneum. It was pointed out that the discharge may not be of any great amount in order to impart the disease to another, there being some cases in which the disease was transmitted when the original infection was contracted years before, and the discharge was of the slightest and not in any way purulent. Some stress was laid in the diagnosis upon the presence of the orifices of the ducts of Bartholin's glands as small red spots; this also occurs in children, but not so frequently as in adults, and is a valuable aid to diagnosis. As to treatment, this was considered eminently unsatisfactory, as when the disease had spread to the cervix, uterus, and tubes no amount of antiseptic douching could eradicate. In conclusion Dr. Robinson said a few words about gonorrhœa in children; he believed it to be far from uncommon; generally it is limited to the structures superficial to the hymen, but in a few cases it spread farther back. After considerable discussion the meeting adjourned.

The Month's Calendar.

[Secretaries of Clubs, &c., are requested to co-operate in making this list as complete as possible by forwarding notices of forthcoming events to the Editor.]

MARCH.

Tues. 15th.—Dr. Hensley's and Mr. Marsh's duty.
Wed. 16th.—Mr. Marsh's Clinical Lecture.
Thurs. 17th.—Abernethian Society, 12.30—1.30. Poll for the Election of Vice-Presidents and Hon. Secretaries, 8 p.m. Annual General Meeting.
Fri. 18th.—Dr. Lauder Brunton's Clinical Lecture. Dr. Lauder Brunton's and Mr. Butlin's duty. Examination for Harvey Prize and Kirke's Scholarship and Gold Medal (paper).
Sat. 19th.—Last day for sending in cards, &c., for Final College and Third M.B.Cambridge Examinations.
Mon. 21st.—Junior Practical Anatomy Examination.
Tues. 22nd.—Dr. Church's and Sir Thomas Smith's duty. Senior Practical Anatomy Examination.
Wed. 23rd.—Junior and Senior Scholarship Examination begins.
Thurs. 24th.—Election of Surgeon to the Staff.
Fri. 25th.—Dr. Gee's and Mr. Willett's duty. Examination for Kirke's Scholarship and Gold Medal (Clinical).
Tues. 29th.—Sir Dyce Duckworth's and Mr. Langton's duty.
Thurs. 31st.—Winter Session ends. Essays for Wix and Bentley Prizes to be sent in.

APRIL.

Fri. 1st.—Dr. Hensley's and Mr. duty.
Tues. 5th.—Dr. Brunton's and the Junior Surgeon's duty.
Thurs. 7th.—Dr. Church's and Mr. Willett's duty.
Fri. 8th.—Good Friday.
Mon. 11th.—Easter Monday.
Tues. 12th.—Dr. Gee's and Mr. Langton's duty.
Fri. 15th.—Sir Dyce Duckworth's and Mr. Marsh's duty. Final Examination for the Conjoint Board begins.

Reviews.

MANUAL OF OPERATIVE SURGERY. By H. J. Waring, M.S., M.B., B.Sc.(Lond.), F.R.C.S.; Young J. Pentland, Edin. and Lond.: 1898.

"Of making of books there is no end;" and the suggestion that is so often drawn, quite unreasonably, is that, like possibly the wearied author of Ecclesiastes, we too suffer from the consequent "weariness of the flesh," and have had enough of books. We are glad the writer of the *Manual* has not been induced to keep his knowledge silent from any such notions; glad that, like ourselves probably, he believes that of the making of *certain* books there *is* enough, whose study it is that wearies. It is good for the profession, and good, consequently, for the public, that Mr. Waring has followed up his excellent treatise on the Diseases of the Liver with an equally excellent one on Operative Surgery. That such a book is a welcome addition to those already in existence, and that it should, and will, be widely read beyond the limits of the hospital with which Mr. Waring is most associated, is our firm conviction; and that both by students—to whom, perhaps, the book is most professedly addressed—and busy country practitioners, who "do" more "surgery" than is generally supposed, but who find it impossible to visit the larger cities to refresh their minds with "latest developments,"—for the work is thoroughly up to date, and will be for some time probably the latest expression of current thought. We accordingly congratulate the "classes held in operative surgery" at St. Bartholomew's.

To glance (and a glance at such a work in 1898 must be rather superficial) through the book, Mr. Waring discusses under each operation: (1) its indications; (2) the preliminary preparations for the anæsthetic and cleanliness; (3) the instruments used; (4) the proper positions; (5) the actual operation, and (6) the after treatment. We think the indications are given as fully and as clearly as we have ever read, and herein, perhaps, more than elsewhere (for the book is in no sense a cram book) lies its special value for examinations. In all the latest books on operative surgery one probably turns first to the chapters on gastro-intestinal surgery—the subject of so much that is difficult and changing. Here we find things evolved clearly out of the chaotic multitudes of schemes and recommendations, some good, many silly, and we think these chapters can hardly be improved upon. For gastrotomy Albert's and Witzel's methods are described, with most favour, perhaps, being shown to the former. For pylorectomy Billroth's method of immediate suture has the most prominent place, but we doubt whether it is the most often done by selection in England. Then follows an account of perforated gastric ulcer, which contains valuable directions (as is Mr. Waring's plan in this section) for finding the viscus and its lesion. The peritoneal cavity is, p.r.n. (p. 49), washed out with an "aseptic solution." Chap. III, p. 95, "numerous operations have been described for the cure of inguinal hernia." The operations given, and given very lucidly, are those of Bassini, Koche, and Macewen; albeit we must confess to a sneaking regard for the old simple method of division and excision of the sac, and suturing of the pillars through an inguino-scrotal incision, as is still done by quite a large number of good operators. The diseases of the liver and its appendages, a subject which we may call the author's own, are fully dealt with,—indeed, we think perhaps Chap. IV is the best in the book, although that on amputations runs it close. For ideal cholecystotomy, or cholecystendysis, "there are few favorable cases," an opinion few will dissent from. The methods of intes-

tinal sutures given are those of Lembert, Czerny, Gussenbauer, and Halstead, together with a few modifications thereof, a perusal of which descriptions can give no excuse for not understanding, especially as the diagrams are clear and well chosen. For enterorrhaphy we read the methods described are (1) by circular suture, or (2) by Mansell's; and (1) is performed by (*a*) immediate suture, or by (*b*) one of the many "mechanical appliances." Of these latter we are burdened only by the Murphy's button, a bone tube, and a bobbin, Senn's plates being relegated to lateral anastomosis. No criticisms are given, the author contenting himself with impartial statements, for which he will probably be unjustly criticised. We think the passages containing these descriptions and classifications of methods good examples of the precision and lucidity of the diction throughout the book.

For urethrotomy only Wheelhouse's operation is described, and it is probably sufficient. The suture method for inguinal colotomy is described fully, and is preferred to Reclus's operation. The operations on the rectum are those usually performed at St. Bartholomew's; but the trans-sacral operation is fully described, and is easy to follow in its various stages. Simplicity is again evolved out of disorder in the chapter containing the operations for removal of the tongue, Whitehead's and Kocher's methods being alone given, and we quite think they give ample choice for most cases. The surgery of the brain is well and fully dealt with, the clearness of the directions for the site of incisions being very pleasing. The operations for ligature of blood-vessels are accompanied by very useful diagrams of transverse sections of the limb in question. We have also nothing but praise for the chapters on amputation and excision, and what we have said as regards the wisdom displayed in selection of methods where there are many and disordered applies equally to the chapter on plastic surgery, that bugbear (in book knowledge) alike to beginners and, judging from their directions, to seniors. It cannot be a matter otherwise than easy for a critic to find errors of both kinds in any work of so wide a range as the one before us. Operative surgery in 1898 is a vast and growing subject; the choice of knowing what to include or exclude must be difficult, and we can, for our part, easily imagine that omissions have not been made without due thought. Yet we must confess we should have liked a page or two on the procedures associated with suppurative peritonitis, and were disappointed not to find some rules laid down for the length of flaps in the flap amputation. Again, we think the subjects of plugging the nares, incision of tonsillar abscess, and some others perhaps more suitable for a book on surgical handicraft, might have been well replaced by advice on the treatment of anal fissure, webbed fingers, and on the injection of hydrocele. The treatment of ruptured urethra is not mentioned. We think, too, that Paul Berger's operation of amputation of the shoulder by an external flap which is brought over the wound left after excision of mamma deserves a place in the book, and we think abdominal section in some cases of hernia where gut is gangrenous should have been alluded to. Most of the figures are very good; some strike us as unnecessary, a quite unusual feature in books on the subject. Except these remarks, the nature of which indicates the difficulty of much adverse criticism, we have nothing but unqualified approval for the *Manual*. The language is crisp and clear, and the information "get-at-able." There are no annoying sarcasms, and we are not burdened with historical details, which the authors of some larger but less useful manuals think necessary. We consider it one of the *multum in parvo* works which are in no sense cram books (it contains over 600 pages), but may rather be considered concentrated essences of what is known of the subject at the time of writing, and as such we cordially approve of it, and recommend it both to students and practitioners, and think it is destined to be largely read. Mr. Jessop also gives a clear and judicious account of some of the more important ophthalmic operations, and, like all the books of its series, it is neat and well got up.

Pathological Department of the Journal.

SPECIMENS sent by subscribers to the JOURNAL will be examined in the Pathological Laboratory, and a report furnished under the supervision of Dr. Andrewes, at the following rate:

	s.	d.
Ordinary examination, Bacteriological or Pathological, such as tumour, membrane, or sputum .	2	6
Ordinary (qualitative) urine examination . . .	2	6

Any further report will be charged at a special rate. If a mounted specimen be desired an extra charge of 1s. will be made. If a telegraphic report be required the cost of the telegram will be charged in addition.

Specimens must be accompanied by the fee and a stamped addressed envelope, in which the report will be sent as soon as possible. Specimens, with, if possible, a short history of the case, must be addressed to "The Manager of the Journal," with "Pathological Department" written in some conspicuous place on the wrapper.

Appointments.

CORNISH, S., M.B., B.S.(Lond.), appointed Ship's Surgeon to the ss. Merionethshire, Japan Line.

* * *

LAWRENCE, B. E., M.R.C.S., L.R.C.P., appointed House Physician to the Victoria Hospital for Children, Chelsea.

* * *

FARMER, W. H., M.R.C.S., L.R.C.P., appointed Surgeon to P. & O. ss. Canton.

* * *

JOY, N. H., M.R.C.S., L.R.C.P., appointed Junior House Surgeon to the Southport Infirmary.

* * *

WAY, A. O., M.R.C.S., L.R.C.P., appointed House Surgeon to the Tottenham Hospital.

* * *

BRIGGS, J. A. O., M.B.(Lond.), M.R.C.S., L.R.C.P., appointed Resident Medical Officer to the Finsbury Dispensary.

* * *

WILSON, NORMAN O., F.R.C.S., appointed Honorary Medical Officer to the Princess Louise Home for Young Girls, Kingston Hill, in conjunction with Mr. Arthur Gale.

* * *

COLBY, J. G. E., M.B., B Ch.(Oxon.), L.R.C.P.(Lond.), F.R.C.S., D.P.H.(Cantab.), has been reappointed Medical Officer of Health by the Norton Rural District Council.

* * *

GIBBES, HENEAGE, formerly Lecturer on Physiology at the Westminster Hospital Medical School, and afterwards Professor of Pathology at the Ann Arbor University, Michigan, has been appointed Health Officer to the City of Detroit.

* * *

BEIT, F. V. O., M.R.C.S., L.R.C.P., appointed Temporary Plague Officer to the Indian Government.

Examinations.

UNIVERSITY OF LONDON.—*Preliminary Scientific: First Division.*—H. V. Wenham. *Second Division.*—F. M. Bishop. *Chemistry and Physics.*—A. C. Brown, W. P. Price, E. G. Pringle, E. B. Smith. *Biology.*—W. C. F. Harland, R. V. G. Monckton.

UNIVERSITY OF LONDON.—*Intermediate M.B.: Second Division.*—F. M. Howell, R. H. Paramore. *Excluding Physiology.*—J. C. M. Bailey, R. C. Bowden, A. B. Brown, A. H. John, E. M. Niall, T. M. Pearce, E. Wethered. *Physiology only: First Division.*—A. G. Ede, A. T. Pridham. *Second Division.*—W. S. Danks, C. S. Frost, T. H. Gandy, J. C. Marshall, and F. W. Sheppard.

SOCIETY OF APOTHECARIES.—*Surgery (Section I).*—G. C. Hobbs. *Medicine (Section II).*—J. B. Cautley (Diploma).

Births.

PENNY.—On February 13th, at Muswell Hill, the wife of A. Gervace Penny, M.A., M.B., B.C.(Cantab.), of a daughter.

SELBY.—On February 11th, at Teynham, Kent, the wife of Prideaux George Selby, of a son.

SHUTER.—On February 4th, at Oaklands, Chiswick Lane, the wife of George Percy Shuter, of a daughter—prematurely.

ACKNOWLEDGMENTS.—*Guy's Hospital Gazette, The Guyoscope, St. Thomas's Hospital Gazette, St. Mary's Hospital Gazette, St. George's Hospital Gazette, London Hospital Gazette, Middlesex Hospital Journal, The Student, The Hospital, The Nursing Record.*